Total No. of Questions : 8] **SEAT No. :**

PB-3636 **[Total No. of Pages : 2**

[6261]-43

S.E. (Computer Engineering) (AI & DS) (Computer Science & Design Engg.)

Computer Graphics

(2019 Pattern) (Semester - III) (210244)

Time : 2½ Hours] ***[Max. Marks : 70***

Instructions to the candidates:

1) ***Answer Q1 or Q2, Q3 or Q4, Q5 or Q6, Q7 or Q8.***
2) ***Neat diagram must be drawn wherever necessary***
2) ***Figures to the right indicate full marks.***
3) ***Assume suitable data if necessary.***

Q1) a) Differentiate between Parallel projection and Perspective Projection **[4]**

b) What is transformation and write transformation matrix for : **[4]**

i) 2-D reflection with respect to line Y=X

ii) 3-D rotation about Y-axis.

c) A triangle is defined by $\begin{bmatrix} 2 & 4 & 4 \\ 2 & 2 & 4 \end{bmatrix}$ Find transformed coordinates after the following transformation **[8]**

i) 90° rotation about the origin.

ii) Reflection about line X = Y

OR

Q2) a) What are the types of projection and write in brief about each type of projections **[4]**

b) Derive 3D transformation matrix for rotation about a principal axis. **[4]**

c) Perform 45° rotation of a triangle A(0, 0), B(1, 1) and C(5, 2). Find transformed coordinates after rotation, (i) About origin, (ii) About P(–. 1, 1). **[8]**

P.T.O.

Q3) a) Write short note on Warnock's Algorithm **[6]**

b) Explain Halftone shading **[5]**

c) Compare Gauraud shading and Phong Shading **[6]**

OR

Q4) a) Explain Backface Detection and removal. **[6]**

b) Explain and compare point source and diffuse illumination. **[5]**

c) Explain the following terms with examples: **[6]**

i) Color gamut

ii) Specular Reflection

iii) Diffuse reflection

Q5) a) Explain, the Bezier curve. List its properties. **[4]**

b) Explain Blending function for B-spline curve **[7]**

c) What are fractals? Explain Triadic Koch in detail **[7]**

OR

Q6) a) Write a short note on interpolation and approximation **[4]**

b) Explain Hilbert's curve with an example. **[7]**

c) With suitable example write short note on the fractal line **[7]**

Q7) a) Explain deletion of segment with suitable example **[7]**

b) Define Morphing and write the applications of Morphing **[3]**

c) Explain renaming of a segment with suitable example **[7]**

OR

Q8) a) Write a short note on motion specification methods based on **[7]**

i) Geometric and kinematics information.

ii) Specification methods based on physical information

b) Write any three important features of NVIDIA gaming platform **[3]**

c) Explain architecture of 1860 **[7]**